REMARKS

The present application includes claims 1-22. By this Amendment, claims 1 and 12 have been amended.

Claims 1-22 were rejected under 35 U.S.C. 102(b) as being anticipated by Mazess et al., U.S. Pat. No. 6,438,201 ("Mazess").

The Applicant now turns to the rejection of claims 1-22 under 35 U.S.C. 102(b) as being anticipated by Mazess. The Applicant respectfully submits that Mazess does not teach or suggest the entirety of the limitations recited in the pending claims for at least the reasons discussed below.

As discussed in the previous Amendment filed June 4, 2007, Mazess generally relates to "dual energy x-ray imaging and measuring equipment that distinguish between multiple basis materials." More particularly, Mazess describes "a scanning bone densitometry system that adjusts x-ray flux by varying the current level of the x-ray source."

As described beginning at col. 2, ln. 40, "[t]he dual energy scanning bone densitometry system of [Mazess] maintains a more closely optimized x-ray flux through an entire scan of the patient by adjusting x-ray current instead of or in addition to adjusting scan speed." This is accomplished by controlling x-ray current according to a flux index based on the location or thickness of the body region being scanned. Because bone density measurements in certain regions of the body may be more critical than other regions, x-ray flux may be increased in these regions, as discussed beginning at col. 3, ln. 1. By adjusting the x-ray current settings for each

scan line, continual flux adjustment may be provided to "maintain proper x-ray flux levels throughout an entire scan."

As illustrated in Figure 31 and discussed beginning at col. 33, line 22, Mazess describes a computer 18 performing one scan across a patient at block 380. During this scan, high and low energy x-rays are detected by the detector 13 after passing through the patient 16. The computer measures bone density using conventional techniques at block 382 based on electrical signals received from the detector 13 corresponding to the number of photons that reach the detector 13. At block 388, the computer 18 determines a flux index that is used to determine whether sufficient x-ray flux is emitted to make accurate bone density measurements. Once the flux index is obtained, a determination is made as to whether a high precision region, that is, a region in which more precise numerical data is desired, has been encountered. If the x-ray beam is at a high precision region, then, as indicated by blocks 394-398, the computer 18 sets a minimum threshold flux to a higher level, which results in a higher x-ray flux. A maximum flux threshold is pre-set according to the saturation characteristics of the detector 13 and remains fixed.

As noted by the Examiner, beginning at col. 34, line 42, Mazess discusses the comparison of the flux index to the minimum and maximum flux thresholds discussed above. This occurs at blocks 400 and 408. If too much energy from the x-ray flux is detected, the x-ray current is decreased, as indicated by blocks 400-404. If the x-ray signal is at the minimum flux threshold, the computer 18 increases the x-ray current as indicated by blocks 408-412. If the signal is between the thresholds, no action is taken.

Thus, Mazess teaches adjusting x-ray flux to improve scanning through a body region with different thickness to achieve more accurate bone density measurements. Mazess compares a flux index to a flux threshold to determine if more or less x-ray flux is needed in a high

precision region. The flux index is based on x-rays detected by a detector after passing through a patient. The flux index is used to determine whether sufficient x-ray flux is emitted to make accurate bone density measurements.

Mazess does not teach detecting shape artifacts due to scintillator hysteresis. As discussed in the Background section of the present application, a shape artifact may appear in an image as a "ghost" of a previous x-ray exposure. Such artifacts occur in areas of increased signal levels in a scintillator of an x-ray detector. The increased signal levels are the result of areas with trapped charge. That is, electrical charge becomes stored in areas of the scintillator. The trapped charge fills up the trapping centers in the scintillator resulting in an increase of the image signal or gain of the scintillator. This increase in the gain of the scintillator is known as hysteresis.

Thus, Mazess does not teach detecting shape artifacts from a prior image due to scintillator hysteresis. Mazess makes no mention of shape artifacts or scintillator hysteresis or detecting shape artifacts due to scintillator hysteresis. Rather, as discussed above, Mazess teaches flux adjustment during a scan for high precision bone density measurement based on comparison of a flux index and a flux threshold in a high precision area of a patient for bone density measurement.

Independent claims 1 and 12 have been amended to recite detection of "a shape artifact from a prior image due to scintillator hysteresis" to clarify what is being detected. As discussed above, Mazess does not teach detection of shape artifacts from a prior image due to scintillator hysteresis. In fact, Mazess makes no mention of shape artifacts or scintillator hysteresis at all. Therefore, the Applicant respectfully submits that independent claims 1 and 12 should be allowable over the cited art of record.

Claims 2-11 and 13-22 depend from independent claims 1 and 12, respectively. The Applicant respectfully submits that because claims 1 and 12 should be allowed for the reasons discussed above, claims 2-11 and 13-22 should also be allowed.

CONCLUSION

It is submitted that the present application is in condition for allowance and a Notice of Allowability is respectfully solicited. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

The Commissioner is authorized to charge any additional fees or credit overpayment to the Deposit Account of GTC, Account No. 070845.

Respectfully submitted,

September 20, 2007

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